



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,206	11/27/2001	Christopher L. Hill	STL10005	9541
7590 09/01/2005 FELLERS, SNIDER, BLANKENSHIP, BAILEY & TIPPENSK, PC BANK ONE TOWER 100 NORTH BROADWAY SUITE 1700 OKLAHOMA CITY, OK 73102-8820			EXAMINER MILLER, PATRICK L	
			ART UNIT 2837	PAPER NUMBER
DATE MAILED: 09/01/2005				

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/995,206

Applicant(s)

HILL ET AL.

Examiner

Patrick Miller

Art Unit

2837

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 April 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 34-48 and 51-56 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 34-48 and 51-56 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 17 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 04262005.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1. Claims 34-48 and 51-56 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.
 - Claims 34, 41, and 47 disclose the predetermined value/threshold/level selected “from a profile of said values that decrease in magnitude during application of power to said load.” Applicant claims support for this feature based on profile 400 of Figure 4 and the flow chart of Figure 5. See response filed on 04/46/05, page 6.
 - It is the examiner’s position that the specification does not disclose a profile whose values decrease in magnitude during application of power to the load. Figure 4 is a voltage profile of voltage versus velocity. The specification states only that a “velocity dependent reference profile 400 may be stored in memory” and the “DSP 230 transmits a data value to the DAC 310 where the data value corresponds to the preprogrammed velocity dependent reference profile 400.” See specification page 7, lines 22-26. The specification also states that the “measure voltage step 504 also includes monitoring the motor velocity and adjusting the DAC 310 reference voltage according to a velocity

dependent reference profile, such as 400.” See specification page 9, lines 9-12. Figure 4 does show the magnitude of the voltage profile decreasing with respect to an increase in terminal velocity. However, neither Figure 4 nor the specification links the decrease in the velocity profile during application of power to the load. The applicant incorrectly correlates an increase in velocity with an application of power applied to the load.

Therefore, the specification does not provide support for the predetermined value/threshold/level selected “from a profile of said values that decrease in magnitude during application of power to said load.”

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 51, 52, 53, 54, 55, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over Touchton et al. (4,967,291) in view of Janonis et al. (5,612,580).

- With respect to claim 34, Touchton et al. discloses an apparatus comprising a circuit that monitors a cumulative amount of charge associated with a power supply (col. 7, ll. 27-51; Fig. 3, #72; Fig. 4, charge at #80 is monitored by #76 from Figs. 3 and 5), wherein the power is removed from a load when the cumulative amount of charge is at least equal to a predetermined value (cols. 7/8, ll. 52-68/1-11; when charge at capacitor 80, as indicated

by the voltage appearing at 76, is above a threshold level, all four transistors are opened, thus interrupting power to the windings).

- With respect to claim 41, Touchton et al. discloses a system comprising: a motor coupleable to a power supply (Fig. 3, #18 to #54); a sensor coupleable to the motor (Fig. 3, #s 66 and 68 are sensors and sense current); a control circuit including an input and an output (Fig. 3, items #70, 71, 72, 74, 76), the input being coupleable to the sensor (Fig. 3, input to #70 is connected to the sense resistors #s 66 and 68), and wherein the control circuit provides an output signal on the output responsive to an amount of charge provided from the power supply that is at least equal to a predetermined threshold (Fig. 3, output of #76 is responsive to the voltage/charge accumulated at the capacitor 80 from Figure 4; cols. 7/8, ll. 27-68/1-11; responsiveness is at least opening all four transistors).
- With respect to claim 47, Touchton et al. discloses a method comprising the steps of: monitoring a charge amount being removed from a power supply, and decoupling the power supply from a load responsive to the charge amount being at least equal to a predetermined level (Fig. 3, output of #76 is responsive to the voltage/charge accumulated at the capacitor 80 from Figure 4; cols. 7/8, ll. 27-68/1-11; responsiveness is at least opening all four transistors).
- Also note that Touchton et al. disclose that the threshold value is supplied to the detector 76 by a control circuit 64, or alternatively, the threshold value is stored within the detector 76 (col. 7, ll. 52-60). Touchton et al. also discloses that the control circuit is a microprocessor or minicomputer (col. 6, ll. 55-60).

- With respect to claims 34, 41, and 47, Touchton et al. does not disclose the value/threshold/level selected from a profile of values that decrease in magnitude during application of power to the load.
- Janonis et al. teaches using an up/down counter to change the voltage magnitude of a threshold voltage (col. 10, ll. 8-10; “to increase or decrease the voltage magnitude”). Specifically, Janonis et al. discloses changing the threshold voltage by executing an embedded charge profile algorithm by monitoring a return current (col. 10, ll. 10-12). Since the claim language (for claims 34, 41, and 47) only states that the magnitude values decrease during application of power to said load/motor, the examiner has interpreted this to require only that power is applied to the load, as opposed to power being increased to the load. Therefore, since Janonis et al. discloses changing the voltage magnitude using a profile when power is applied to the load, this means that at some point the voltage magnitudes in the profile decrease, thus meeting the claims’ “profile” limitation. It would have been obvious to one having ordinary skill in the art at the time of the invention that the processor of Touchton et al. could implement an up/down counter and an embedded charge profile algorithm to reduce the magnitude of the threshold voltage input into the detector (Fig. 5, #76) of Touchton et al. Implementing the ability to adjust a threshold voltage using a profile allows the velocity threshold of Touchton et al., which is indicated by the threshold voltage value, to be changed based on operating conditions or for different motors having different characteristics. This provides the advantage of adjusting the threshold to prevent the motor from exceeding a velocity over its maximum rated velocity.

- Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to control the threshold voltage of Touchton et al. using a profile that has values that decrease when the power is supplied to the load, thereby providing the advantage of preventing the motor from exceeding a velocity over its maximum rated velocity, as taught by Janonis et al.
- With respect to claim 35, Touchton et al. disclose the load being a motor (col. 2, l. 68; voice coil motor).
- With respect to claim 36, Touchton et al. disclose drivers that are disabled in response to the cumulative amount of charge being at least equal to the predetermined value (cols. 7/8, ll. 52-68/1-11; “opens all four transistors,” and the transistors are interpreted as drivers).
- With respect to claims 37 and 40, Touchton et al. discloses disabling driving transistors when a voltage value, which is directly related to the current through the motor, exceeds a predetermined value (col. 8, ll. 1-11). This is interpreted as minimizing spikes above the predetermined value indicate that the driving transistors should be disabled.
- With respect to claim 38, Touchton et al. disclose the cumulative amount of charge being monitored by an integrative device (Figs. 3 and 4, #72).
- With respect to claims 39 and 48, Touchton et al. disclose a voice coil motor, which is an inductive load (col. 2, l. 68).
- With respect to claim 42, Touchton et al. discloses an integrator coupled between the input and the output (Fig. 3, #72).

- With respect to claim 43, Touchton et al. discloses a comparator coupled between the input and the output (Fig. 3, #84 of #76).
- With respect to claim 44, Touchton et al. discloses a comparator and a latch, which the examiner interprets as a one shot type comparing comparator device because the latch latches the “trigger” signal from the comparator (Fig. 5).
- With respect to claims 45 and 46, Touchton et al. discloses motor drivers that are coupleable to the motor and the output (Fig. 3, Q1-Q4 are coupled to #18 and #76 via #64), wherein the motor drivers are controlled responsive to the output signal (cols. 7/8, ll. 60-68/1-11; responsiveness is opening all four transistors in response to the charge/voltage at the capacitor 80 from Figure 4).
- With respect to claim 51, Touchton et al. disclose decoupling the power supply from the load for a predetermined time (col. 8, ll. 45-48; complete reinitialization of the system must be done by periodically resetting the integrating circuit).
- With respect to claim 52, Touchton et al. discloses the amount of charge being removed from the power supply of the monitoring step is monitored by sensing an amount of current flowing through the load (Fig. 3, #s 66 and 68 are sensors that sense the current flowing through the load).
- With respect to claim 53, Touchton et al. discloses the monitoring step further comprising accumulating charge in relation to the sensed amount of current flowing through the load (Fig. 4, #80 accumulates charge based on the current flowing through the motor, which is sensed by the sense resistors 36 and 44 from Figure 3).

Art Unit: 2837

- With respect to claims 54, 55, and 56, Touchton et al. disclose controlling the motor during acceleration (col. 7, ll. 34-39). Based on the teachings of Janonis et al. to use a profile to change the voltage threshold in Touchton et al., this means that the profile is used during acceleration.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick Miller whose telephone number is 571-272-2070. The examiner can normally be reached on M-F, 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on 571-272-2800 ext 41. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9318.

Art Unit: 2837


Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Patrick Miller
Examiner
Art Unit 2837

pm
August 22, 2005



MARLON T. FLETCHER
PRIMARY EXAMINER